6SA7
6SA7-GT/G

6SA7, 6SA7-GT/G

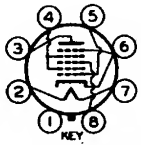
PENTAGRID CONVERTER

Heater ■	Coated Unipotential Cathode		
Voltage	6.3	a-c or d-c	volts
Current	0.3		amp.

Direct Interelectrode Capacitances:	6SA7	6SA7-GT/G	
Grid #3 to All Other Electrodes (R-F Input)	9.5▲	11▲▲	µµf
Plate to All Other Electrodes (Mixer Output)	12▲	11▲▲	µµf
Grid #1 to All Other Electrodes (Osc. Input)	7▲	8▲▲	µµf
Grid #3 to Plate	0.13 max.▲	0.5 max.▲▲	µµf
Grid #3 to Grid #1	0.15 max.▲	0.4 max.▲▲	µµf
Grid #1 to Plate	0.06 max.▲	0.2 max.▲▲	µµf
Grid #1 to Shell, Grid #5, and All Other Electrodes except Cathode	4.4	-	µµf
Grid #1 to All Other Electrodes except Cathode & Grid #5	-	5	µµf
Grid #1 to Cathode	2.6	-	µµf
Grid #1 to Cathode & Grid #5	-	3	µµf
Cathode to Shell, Grid #5, and All Other Electrodes except Grid #1	5	-	µµf
Cathode and Grid #5 to All Other Electrodes except Grid #1	-	14	µµf
Maximum Overall Length	2-5/8"	3-5/16"	
Maximum Seated Height	2-1/16"	2-3/4"	
Maximum Diameter	1-5/16"	1-5/16"	
Bulb	Metal Shell MT-8	T-9	
Base	Small Wafer, Octal 8-Pin	Intermed. Sh. Octal 8-Pin	

Pin 1 { 6SA7, Shell, Grid #5 / 6SA7-GT/G, No Conn.
Pin 2 - Heater
Pin 3 - Plate
Pin 4 - Grids #2 & #4
Pin 5 - Grid #1
Pin 6 { 6SA7, Cathode / 6SA7-GT/G, Cathode & Grid #5
Pin 7 - Heater
Pin 8 - Grid #3

BOTTOM VIEW (8R)



BOTTOM VIEW (G-8AD)

Mounting Position: Any

Maximum And Minimum Ratings Are Design-Center Values

CONVERTER SERVICE

Plate Voltage	300 max.	volts
Grids #2 & #4 Voltage	100 max.	volts
Grids #2 & #4 Supply Voltage	300 max.	volts
Grid #3 Voltage *	0 min.	volts
Plate Dissipation	1.0 max.	watt
Screen Dissipation	1.0 max.	watt
Total Cathode Current	14 max.	ma.

■ In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.
▲ With shell connected to cathode.
▲▲ With external shield connected to cathode.
* For self-excited oscillator.
← Indicates a change.

6SA7
6SA7-GT/G

6SA7, 6SA7-GT/G
PENTAGRID CONVERTER

(continued from preceding page)

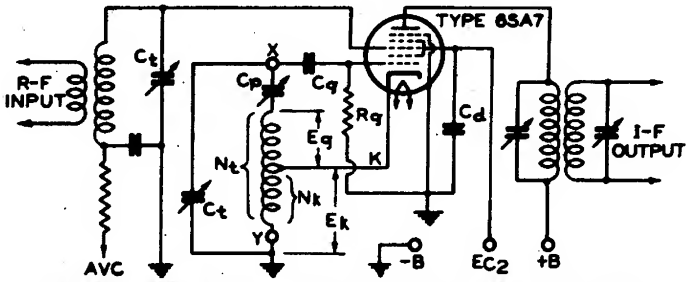
Characteristics:	*Self-excitation**		*Separate Excitation*		
Plate Voltage	100	250	100	250	volts
Grids #2 & #4 Volt.	100	100	100	100	volts
Grid #3 (Control) Volt.	0	0	−2	−2	volts
Grid #1 Resistor	20000	20000	20000	20000	ohms
Plate Res. (Approx.)	0.5	1.0	0.5	1.0	megohm
Conversion Transcond.	425	450	425	450	μmhos
Conversion Transcond. (Approx.) ‡	2	2	2	2	μmhos
Plate Current	3.3	3.5	3.3	3.5	ma.
Grids #2 & #4 Current	8.5	8.5	8.5	8.5	ma.
Grid #1 Current	0.5	0.5	0.5	0.5	ma.
Total Cathode Current	12.3	12.5	12.3	12.5	ma.

NOTE: The transconductance between Grid #1 and Grids #2 & #4 connected to plate (not oscillating) is approximately 4500 μmhos under the following conditions: Grids #1, #3, and shell at 0 volts; Grids #2 & #4 and plate at 100 volts.

* Characteristics are approximate only and are shown for a Hartley circuit with a feedback of approximately 2 volts peak in the cathode circuit.

‡ With Grid #3 bias of −35 volts.

TYPICAL SELF-EXCITED CONVERTER CIRCUIT FOR TYPE 6SA7



Cd = BY-PASS COND.
Cg = 50 μμf
Cp = PADDING COND.
Ct = TUNING COND.

Nt = TOTAL TURNS IN OSC. COIL
Nk = TURNS IN CATHODE SECTION OF OSC. COIL
Rg = 20000 OHMS

CE-4992

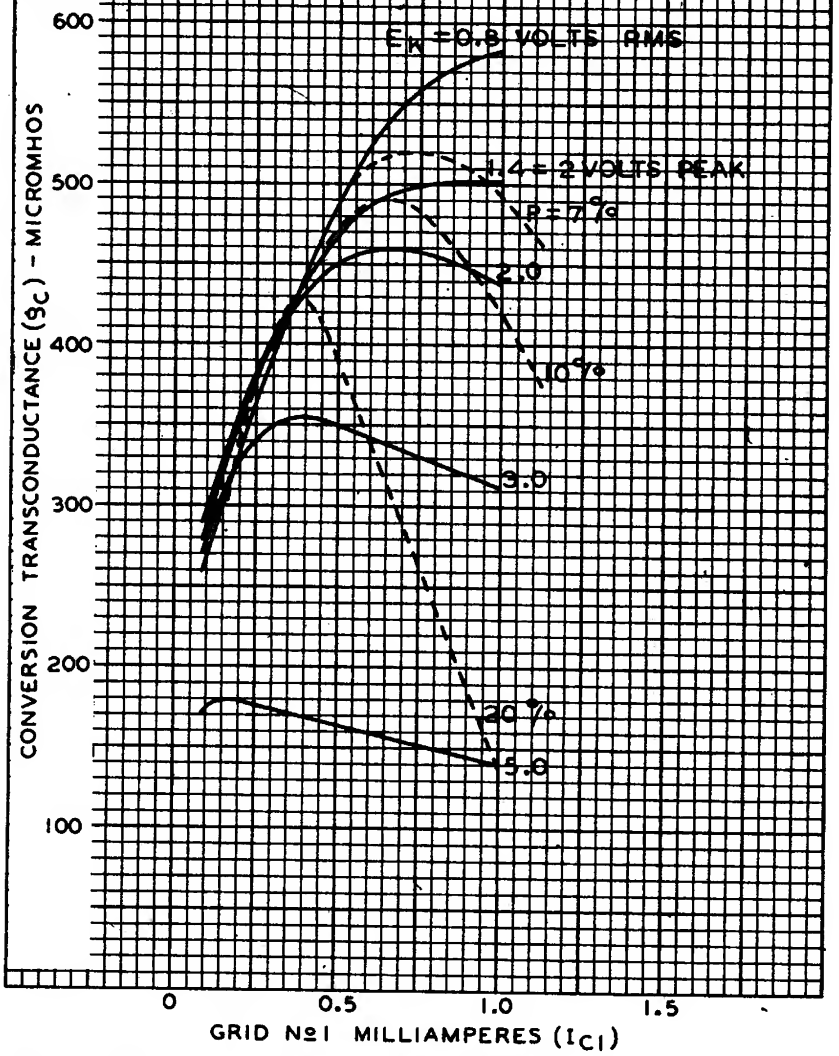
The license extended to the purchaser of tubes appears in the License Notice accompanying them. Information contained herein is furnished without assuming any obligations.

RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

6SA7

OPERATION CHARACTERISTICS
WITH SELF-EXCITATION

E_f = 6.3 VOLTS
PLATE VOLTS = 250
GRIDS №2 & №4 VOLTS = 100
GRID №3 (CONTROL GRID) VOLTS = −1
GRID №1 RESISTOR − OHMS = 20000
P = PERCENTAGE RATIO OF E_k TO $E_k + E_g$: SEE CIRCUIT

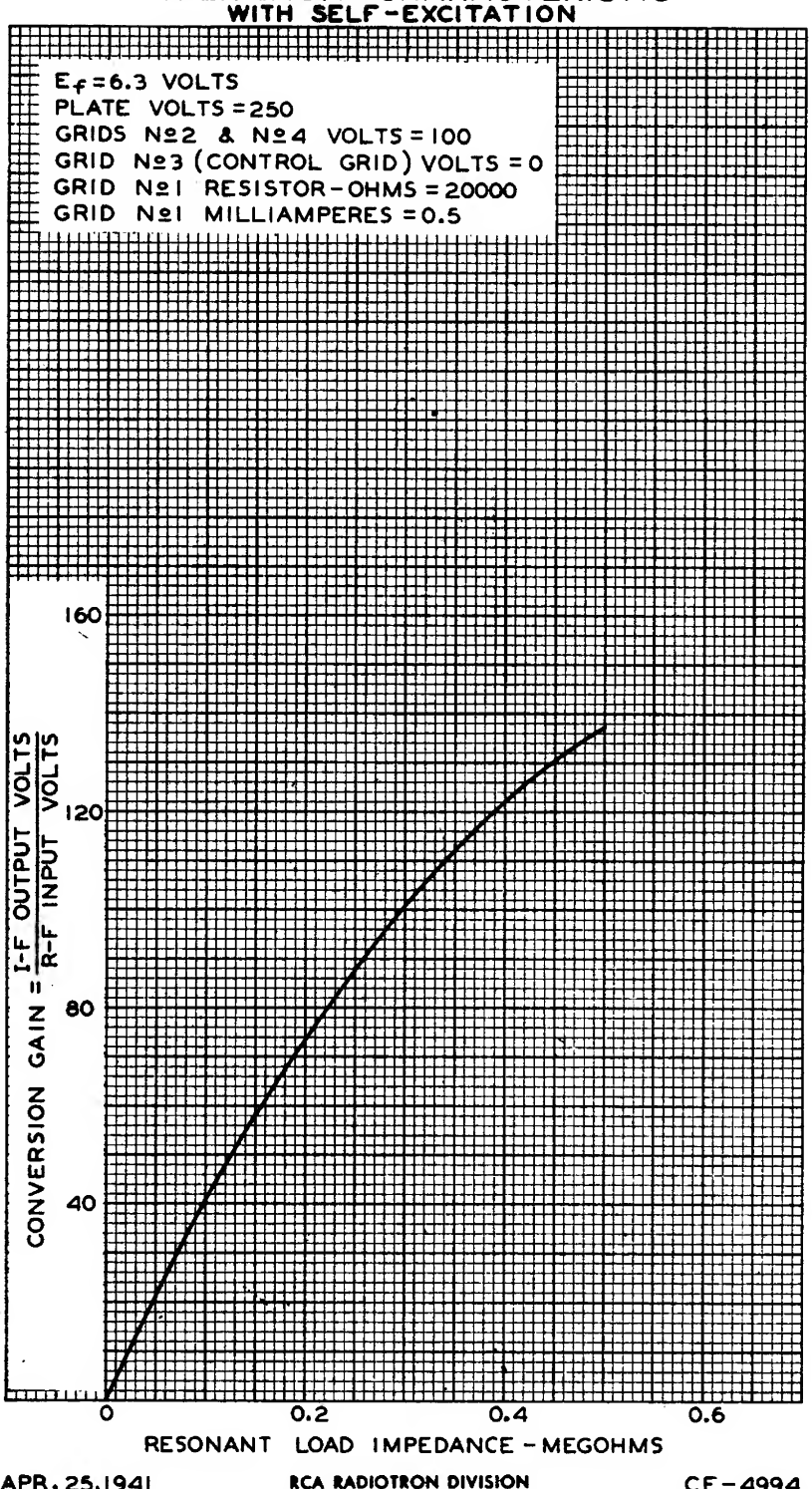


RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

6SA7

6SA7

OPERATION CHARACTERISTIC
WITH SELF-EXCITATION



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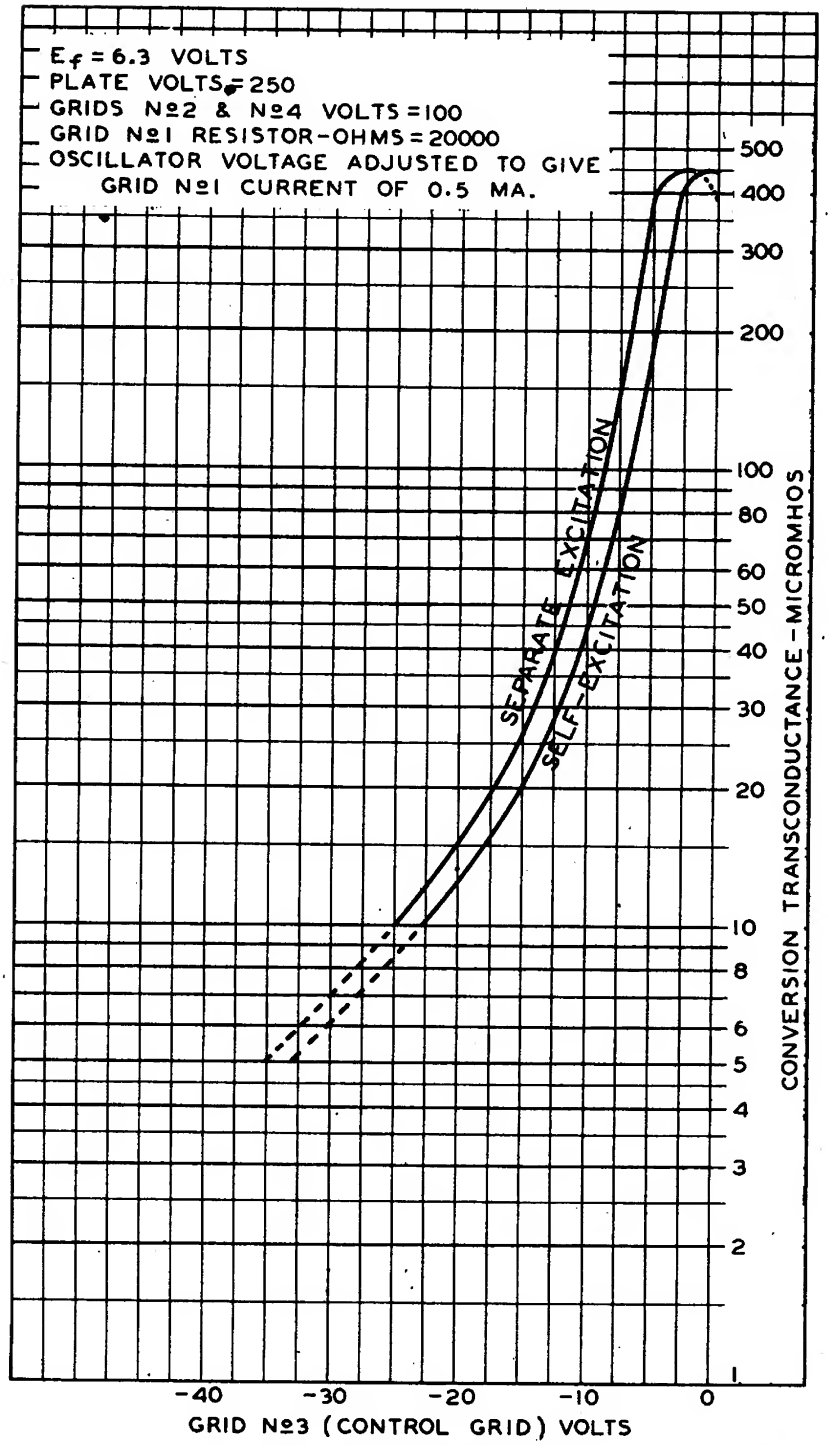
6SA7

OPERATION CHARACTERISTICS



OCT. 25, 1938

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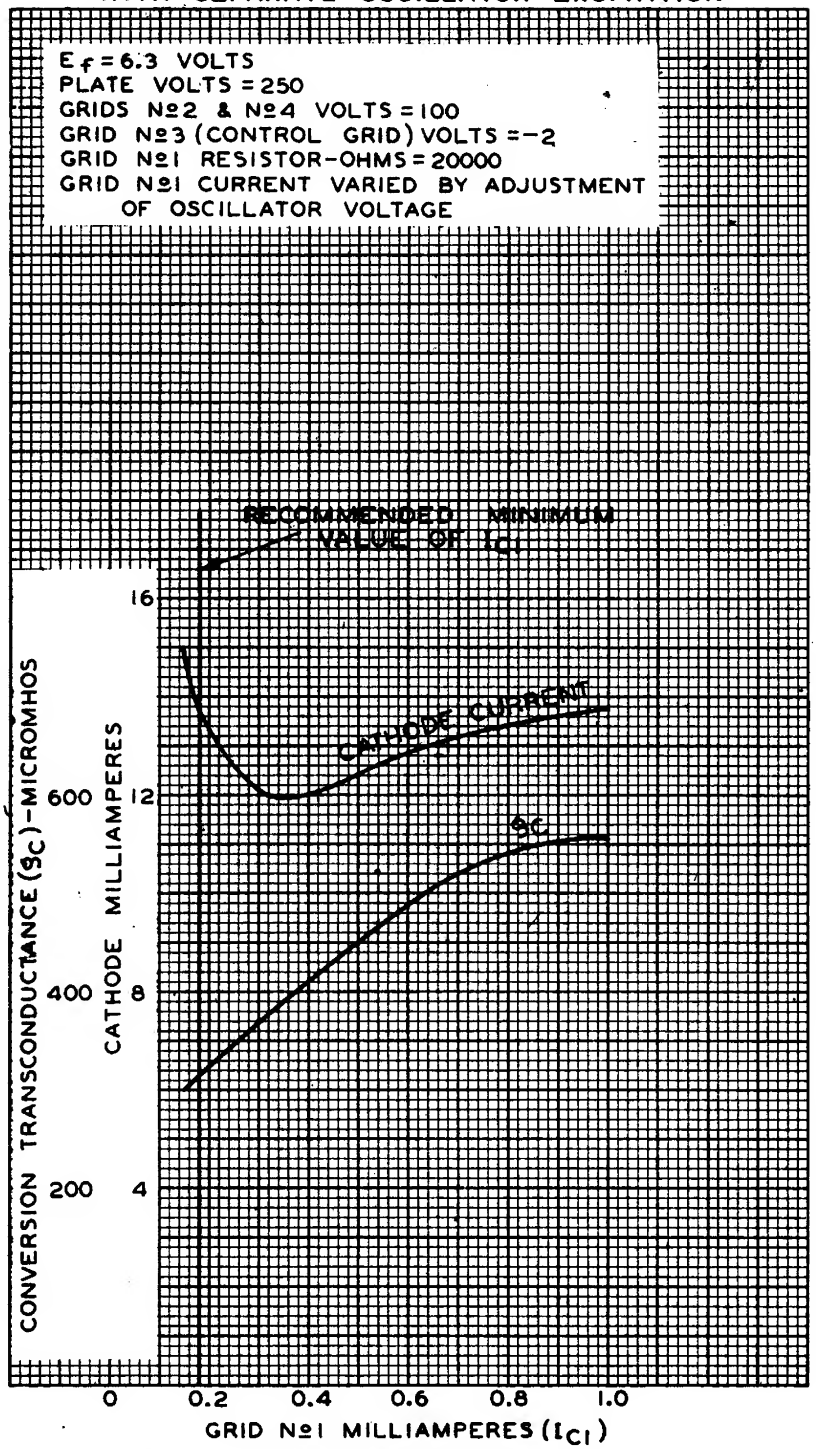
92C-4989

6SA7

6SA7

OPERATION CHARACTERISTICS
WITH SEPARATE OSCILLATOR EXCITATION



APR. 24, 1941

RCA RADIOTRON DIVISION
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92C-4990R1